Fall 2020

ME 316-101: Machine Design

Narasinha Parasnis

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ME 316 Machine Design

Prof. Narasinha Parasnis

Synchronous Online Course, Wednesdays 06:00 PM - 08:50 PM

First Day of Class: Wednesday, September-2-2020

Office Hours : Wednesday 5:00 to 6:00 PM

Email : narasinha.c.parasnis@njit.edu

Outline

Required Text:

Shigley's Mechanical Engineering Design, 11th Edition

By Richard Budynas and Keith Nisbett

ISBN10: 0073398217

ISBN13: 9780073398211

Course Description

The course will introduce you to the design process as related to design of machine elements. This course will teach you the concepts and methodologies behind the design of several types of mechanical components that are subjected to different types of loading conditions.

Meeting Information

- Meeting link:
  - https://njit.webex.com/njit/j.php?MTID=mbaa7d63a2920883a0c750539e2383a9e
- Meeting number:
  - 120 597 7170
- Password:
  - machine
- Host key:
  - 559954
- Join by video system
  - Dial 1205977170@njit.webex.com
  - You can also dial 173.243.2.68 and enter your meeting number.
- Join by phone

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- 1-650-479-3207 Call-in number (US/Canada)
- Access code: 120 597 7170

Prerequisite(s):

- ME 231 Kinematics of Machinery
- ME315 Stress Analysis

Best ways to contact with me

Office hours, Wednesday 5:00 to 6:00 PM

Email: narasinha.c.parasnis@njit.edu

I am targeting to reply to each email within 24 hours

Course Schedule

Week	Date	Topic	Due
1	Sep-2-2020	Introduction Chapter 1: Introduction to Mechanical Engineering Design Chapter 2: Materials	None
2	Sep-9- 2020	Chapter 3: Load and Stress Analysis	HW based on chapter 1 and 2
3	Sep-16- 2020	Chapter 4: Deflection and Stiffness	HW based on chapter 3
4	Sep-23-2020	Chapter 5: Static Failure	HW based on chapter 4
5	Sep-30-2020	Chapter 6: Fatigue Failure Exam 1 Review	HW based on chapter 5
6	Oct-7-2020	Exam 1, (first 1.5 hours) Project review help session (next 1.5 hours)	HW based on chapter 6
7	Oct-14-2020	Project Presentation, Requirements, Chapter 7: Shafts	Project Review
8	Oct-21-2020	Chapter 7: Shafts	None
9	Oct-28-2020	Chapter 8: Screws Chapter 10: Mechanical Springs	HW based on chapter 7
10	Nov-4-2020	Chapter 11: Rolling bearings, Exam 2 review	HW based on chapter 8 and 10
11	Nov-11-2020	Exam 2, (first 1.5 hours) Project review help session (next 1.5 hours)	HW based on chapter 11
12	Nov-18-2020	Project Presentation, Concept Design Chapter 13: Gears	Project Review
13	Nov-25-2020	Chapter 13: Gears Chapter 14: Spur and Helical Gears	None
14	Dec-2-2020	Chapter 17: Flexible mechanical elements	HW based on chapter 12, 13
15	Dec-9-2020	Project Presentation, final design Final Exam review	HW based on chapter 17 Project final

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Week	Date	Topic	Due
16	See Registrar webpage	Final Exam	None

Homeworks (30% of final grade)

10 homeworks will be assigned through out the semester, 2 lowest grades will be dropped and remaining 8 homework grades will be counted towards the final grade.

Project (20% of final grade)

The class will be divided into groups. Each group will be assigned one project. The group will work on that project throughout the semester. The project will be presented by the class three times during the semester.

1. First presentation will involve research and requirements, (5% of final grade)
2. Second presentation will be concept review, (5% of final grade)
3. Third presentation will be final comprehensive project review (10% of final grade).

Exams (50% of final grade)

There will be 3 exams during the semester of which one will be a comprehensive final. The exams will be based on content covered in the class and as a part of homeworks.

1. Exam 1: Chapters 1, 2, 3, 4, 5, 6 (10% of final grade)
2. Exam 2: Chapters 7, 8, 10, 11 (10% of final grade)
3. Final exam: Comprehensive (30% of final grade)

Grading

Item	% of total grade
Homeworks (8 homeworks)	30
Project, requirements, and problem definition	5
Project, concept design and review	5
Project, final design, and review	10
Exam 1	10
Exam 2	10
Final Exam	30

Final score	Letter grade
90 % and above	A
80% and above	B
70% and above	C
60 % and above	D

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Final score	Letter grade
< 60%	F

Extra credit

Extra-credit (up to 5 points) will be available based on class attendance and participation. These Extra-Credits are added to the final Grade Points.

Unexcused absences

Any more than 1 unexcused absence will negatively affect your grade.

Prerequisites:

ME 215 Materials and Processes, ME231 Kinematics of Machinery and ME315 Stress

Analysis

Correspondence

Please be clear, concise and professional in your email correspondence.

Academic Integrity

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*** *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"*

This listing of "best practices" was assembled by a special Task Force on Academic Integrity in Fall 2006 with input solicited from the entire NJIT community.

http://www5.njit.edu/provost/sites/provost/files/lcms/docs/Best_Practices_related_to_Academic_Integrity.pdf